REMARKS

Reconsideration of this application, as presently amended, is respectfully requested. Claims 1-23 are now pending in this application, new claim 23 having been added by the present Amendment. Claims 1-22 were rejected.

Summary of Examiner Interview

Initially, it is noted that a personal interview with the Examiner was originally scheduled for Thursday, October 28 at 2:00 pm. However, the Examiner cancelled this interview on the morning of October 28th. Furthermore, the Examiner was unable to re-schedule the interview until after the initial November 5, 2010 due date, thereby necessitating a one-month extension of time.

During the personal interview conducted on November 10, 2010, the differences between the primary reference cited against independent claims 1, 4, 9, 13, 14, i.e., the **Chakraborty** reference, and the features in claim 1 (as an example claim) were discussed. No agreement was reached during the interview.

Claim Rejection – 35 U.S.C. §112, second paragraph

Claim 1 was rejected under 35 U.S.C. §112, second paragraph, for alleged indefiniteness. More specifically, with respect to claim 1, the Office Action asserts that there is insufficient antecedent basis for the language "the image" in line 13.

Claim 1 has been amended to obviate the §112, second paragraph. Reconsideration and withdrawal of the rejection under §112, second paragraph, are respectfully requested.

Claim Rejections – 35 U.S.C. §103

Claims 1-3, 15 and 17-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Chakraborty et al.** (USP 7,110,454, previously cited) in view of **Toklu et al.** (USP 6,549,643, previously cited) and further in view of **Park et al.** (US 6,597,738, previously cited).

Claims 4-6, 9-14 and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Chakraborty et al.** in view of **Toklu et al.**

Claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over **Chakraborty et al.** in view of **Toklu et al.**, and in view of **Yilmaz et al.** (Shot Detection Using Principal Coordinate System, previously cited).

Claim 16 was rejected under 35 U.S.C. §103(a) as being unpatentable over **Chakraborty et al.** in view of **Toklu et al.**, and in view of **Yilmaz et al.** (Shot Detection Using Principal Coordinate System).

Claims 7 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Chakraborty et al.** in view of **Toklu et al.** and in further view of **Blanchard** (USP 6,347,114, previously cited).

Claim 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Nakamura et al.** (US 2001/0051516, previously cited) and in view of **Pan et al.** (US 2002/0080162, previously cited) in view of **Gonsalves et al.** (USP 6,392,710, previously cited).

Claim 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Nakamura et al.** and in view of **Pan et al.** (USP 6,931,595) in view of **Gonsalves et al.** and further in view of **Gotoh et al.** (USP 5,801,765, previously cited).

Initially, it is noted that independent claims 1, 4, 9, 13, 14 and 21 have been amended to clarify features of the present invention.

A "scene change" in **Chakraborty** is not a scene change but "shot division" in the present invention. In the present invention, a sequence of a plurality of shots is identified as a scene. It is the feature of the present invention that video is segmented into shots, and then respective shots are classified into a scene, and then a sequence of a plurality of shots which is classified into part of the same scene is identified as the scene.

The present amendments to the claims clarify the differences between "scene change" of **Chakraborty** and "scene" of the present invention. That is, the presently amended claims clarify that video is segmented into shots based on cut information. Support for the claim amendments is provided, e.g., on page 6, lines 18-20 of the specification as originally filed.

For example, the apparatus of the present invention is able to detect a commercial scene which includes a plurality of cut points from the video because the apparatus of the present invention is able to detect shots from the video based on the cut information, and then sequence of a plurality of shots which is classified into the part of a commercial scene is identified as a commercial scene. On the other hand, **Chakraborty** is not able to detect a commercial scene which includes a plurality of cuts from the video because **Chakraborty** is not able to classify

each shot into a commercial scene, that is, **Chakraborty** is not able to recognize whether each detected shot is a part of the commercial scene or not.

To detect a target scene from the video, two steps are necessary. That is, the first step is to segment the video into shots based on cut information, and the second step is to classify each shot into a scene based on the feature of each shot. **Chakraborty** is not able to detect a target scene from the video because **Chakraborty** lacks the second step. In **Chakraborty**, even a sequence of a plurality of shots which has same feature because the shots constitute identical scene is not recognized as an identical scene.

Chakraborty is directed to a system that detects transitions between shots in order to segment a video into a sequence of shots, where a transition between shots is referred to as a cut point or scene change. The end result in **Chakraborty** is sequence of segmented shots. **Chakraborty** does not perform any analysis on a shot after it is segmented to classify the shot into a scene. This is clearly disclosed, e.g., in col. 4, line 66- col. 5, line 2; and Fig. 1, element 21 (Shot List Database) and Fig. 2B, step 232 (Output Final Shot List) as evidence that the final result of **Chakraborty** is a list of segmented shots.

Because the end result in **Chakraborty** is a list of segmented shots, it is clear that **Chakraborty** teaches no further analysis of a plurality of continuous shot to classify those shots into a specific type of scene. It is noted that, during the interview, the Examiner cited column 1, lines 35-40 of **Chakraborty** as teaching classifying a shot into a scene.

Column 1, lines 35-40 of the **Chakraborty** references states the following:

> A "shot" or "take" in video parlance refers to a contiguous recording of one or more video frames depicting a continuous action in time and space. Typically, transitions between shots (also referred to as "scene changes" or "cuts") are created intentionally by film directors.

It is submitted that col. 1, lines 35-40 of **Chakraborty** actually supports applicants' position because it describes that transitions between shots are referred to as "scene changes" or "cuts". More specifically, this portion supports applicants' position that the "scene change" referred to throughout **Chakraborty** is merely the same as a shot transition or cut point, and does ***not*** somehow imply that **Chakraborty** classifies a segmented shot into a scene.

Moreover, when **Chakraborty** uses the term "scene", the reference is using this term synonymously with the term "shot" (see col. 7, lines 44, 52 and 62 as evidence). In other words, a "scene" in **Chakraborty** is not a portion of video that is defined differently from the "shot", and certainly nowhere does **Chakraborty** define a classifying a shot into "scene" composed of a plurality of continuous shots.

Finally, it is noted that Fig. 3D of **Chakraborty** and the accompanying description in col. 7, line 61 – col. 8, line 12 makes clear that **Chakraborty** refers to scenes and shots as the same thing. More specifically, Fig. 3D illustrates the output of a scene change detector module 18 as "a list of scenes or shots corresponding to input video data" (see col. 7, line 62). **Chakraborty** describes the output of the scene change detector module as a sequence of "1s" and "0s" respectively representing frames that are part of a shot and frames that are part of a scene change. From the data sequence in Fig. 3D a shot list is generated (see col. 8, lines 7-12).

However, col. 7, lines 61 – col. 8, line 12 clearly indicates that the "list of scenes (or shots)" are the same list because this portion only describes that a single "shot list" is output.

Moreover, **Chakraborty** is silent regarding classifying the shots in the shot list into specific types of scenes.

Independent Claims 1, 4, 9, 13 and 14

As noted above, in contrast to the claimed invention, **Chakraborty** is unrelated to classifying a segmented shot into a scene composed of a plurality of continuous shots. Moreover, as argued in the response filed on September 5, 2008, **Toklu** does not alleviate any of the deficiencies of **Chakraborty.**

In contrast to the invention as recited in claims 1, 4, 9, 13 and 14, the end result in **Chakraborty et al.** and **Toklu et al.** is a segmented shot. The only process that appears to be performed on the segmented shot of **Chakraborty** and **Toklu** (i.e., after the shot is segmented) is selecting a keyframe (see, e.g., col. 14, lines 52-55 of **Chakraborty**). In contrast, the claimed invention performs various processes (e.g., calculates shot density, calculates motion intensity, classifies a dynamic/static scene) after the shot is segmented in order to classify the shot into a scene, which scene includes a plurality of continuous shots.

In summary, Applicants submit that none of the cited references disclose or suggest any of the features recited in claims 1, 4, 9, 13 and 14, other than the claimed "a shot segmentation device to segment the video into respective shots," because none of the references teach or suggest performing the claimed operations on the segmented shots (i.e., on shots after they are segmented), and none of the references teaches performing the claimed operations on segmented shots to classify the shot into a specific type of scene including a plurality of continuous shots.

Independent Claim 14

The Examiner has also rejected claim 14 by combining the **Yilmaz** reference with **Chakraborty et al.** and **Toklu**.

However, first **Yilmaz** does not alleviate any of the deficiencies of **Chakraborty et al.** and **Toklu** discussed above, nor has the Examiner asserted that **Yilmaz** alleviates those deficiencies discussed above.

Second, the Examiner relies on **Yilmaz** to teach the claimed "classifying the scene as a commercial scene in response to the comparing indicating that the number of shot boundaries detected during the predetermined interval is greater than the predetermined reference number". However, **Yilmaz** does not disclose this feature. More specifically, **Yilmaz** calculates the ***mean*** of eigenvectors (v3) in a ***shot*** and compares the ***mean*** with a threshold value to label the **shot** as an advertisement (see page 4, col. 2, lines 11-14). In contrast, unlike **Yilmaz**, in accordance with the claimed invention, the scene (which is a larger unit than a shot) is classified as a commercial scene by a comparison "indicating that the number of shot boundaries detected during the predetermined interval is greater than the predetermined reference number". **Yilmaz** does not use a number of shot boundaries in a predetermined interval to classify a commercial scene. ***Unlike the claimed invention, Yilmaz uses a mean of eigenvectors in a shot to label the shot as an advertisment.***

Claim 21

The Examiner relies on the combination of **Nakamura**, **Pan** and **Gonsalves** to teach the features of claim 21.

In particular, the Examiner relies on **Pan** to teach "*inserting means for inserting a video transition effect into a combined portion of the respective highlight scenes, the inserting means including a dynamic/static scene detector to detect whether a highlight scene is a dynamic scene with much motion or a static scene with little motion*". The Examiner relies on **Gonsalves** to teach "*wherein the inserting means makes a type of the video transition effect to be inserted different according to whether the highlight scenes to be combined are the dynamic scene or the static scene.*"

First, **Gonsalves** does not disclose or suggest anything about an "inserting means [that] makes a type of the video transition effect to be inserted different according to whether the highlight scenes to be combined are the dynamic scene or the static scene." The Examiner now (for the first time) cites portions of **Gonsalves** which allegedly teach this feature, specifically, col. 3, lines 11-14; col. 4, lines 65-67 and col. 5, lines 50-52. However, these portions generally teach inserting a special effect between two frames or fields marked as keyframes. These portions are completely silent with respect to inserting means that "makes a type of the video transition effect to be inserted different according to whether the highlight scenes to be combined are the dynamic scene or the static scene." These portions of **Gonsalves** are completely unrelated to the inserted video transition effect being different based on highlight scene being a dynamic or a static scene.

Second, the Examiner relies on **Pan** teaching of an edit effect (16, Fig. 1) that is present between normal segment 12 and a slow motion replay 18 segment to teach the claimed "*inserting means*." However, the edit effect 16 of **Pan** is not inserted into a combined portion of highlight scenes ("*inserting means for inserting a video transition effect into a combined portion of the respective highlight scenes*").

Further, the Examiner apparently concludes that because the edit effect 16 (such as a fade or wipe) is inserted between the normal video and slow motion replay, that it must be inserted based on a dynamic/static scene detector. However, **Pan** is silent as to what parameters insertion of the edit effect is based. That is, **Pan** does not disclose an inserting means that includes "*a dynamic/static scene detector to detect whether a highlight scene is a dynamic scene with much motion or a static scene with little motion*". Accordingly, the combination of the teachings of **Nakamura**, **Pan** and **Gonsalves** does not result in the claimed invention.

For all the reasons set forth above, it is submitted that independent claims 1, 4, 7, 9, 13, 14 and 21, and claims dependent therefrom, patentably distinguish over the combinations of cited prior art. Reconsideration and withdrawal of the rejections under §103 are respectfully requested.

New claim

New claim 23 has been added by the present Amendment. New claim 23 is a method claims that corresponds to independent claim 1. New claim 23 patentably distinguishes over the cited prior art for reasons similar to those articulated above regarding claim 1.

CONCLUSION

In view of the foregoing, it is submitted that all pending claims are in condition for allowance. A prompt and favorable reconsideration of the rejection and an indication of allowability of all pending claims are earnestly solicited.

If the Examiner believes that there are issues remaining to be resolved in this application, the Examiner is invited to contact the undersigned attorney at the telephone number indicated below to arrange for an interview to expedite and complete prosecution of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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